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The gemmae at maturity measure 0.5 mm. in diameter. The adult leaf measures 0.8 mm. in diameter. In *R. protensa*, a native of New Guinea and adjacent regions, the initial becomes covered with a greater quantity of gelatinous material than in *R. flaccida*. As the gemma increases in size it finally bursts through the gelatinous covering, which then clings to the base like a collar.

The gemmae of *Radula* are arranged in two groups according to complexity. In the first group the gemmae occur on margins of leaves, are irregular in outline when mature, and may be more than one cell thick; in the second they occur on the margin and surface of leaves, are regular in development and symmetrical in form, and are only one cell thick. *R. flaccida* and *R. protensa* belong to the second class.—W. J. G. LAND.

Cytology of Hymenomycetes.—LEVINE,⁴³ working in Harper's laboratory, has investigated the carpophores of 24 species of *Boletus* and of several species of *Polyporus*, has had in cultures the mycelia of various Hymenomycetes, and has secured some spore germination (none of the spores of *Boletus* germinated), so that his observations of the nuclear phenomena are somewhat extensive. The germinating spores of *Pholiota praecox* produce multinucleate germ tubes; in cultures 48 hours old the cells of the mycelium are multinucleate; but in cultures 3 days old, both uninucleate and binucleate cells are found. The mycelial cells of many species are binucleate, with clamp connections, etc. In the mature stipe of *Boletus granulatus* all the cells are multinucleate; while those of the ring, of the flesh and trama, and of the subhymenium are binucleate. At the end of the second division of the fusion nucleus in the basidium, the centrosomes become attached to the walls of the basidium and the 4 daughter nuclei remain connected with them by fibrillar strands. The centrosomes determine the points of origin of the 4 sterigmata and are carried up with the growth of the sterigmata and into the spores, pulling the nuclei into the spores. All the spores studied were uninucleate at first. The conclusion is that an alternation of generations "comparable to that in the Uredineae" is also present in these forms. "The sporophyte begins at some indefinite point in the mycelium and extends through the development of the carpophore."—J. M. C.

Aluminium salts.—FLURI⁴⁴ has claimed that aluminium salts render certain plant cells incapable of being plasmolyzed by ordinary plasmolytic agents by rendering the protoplasm highly permeable to these reagents. SZÜCS⁴⁵ finds that the protoplasm is rendered less permeable to many agents by aluminium salts,

⁴³ LEVINE, MICHAEL, Studies in the cytology of the Hymenomycetes, especially the Boleti. Bull. Torr. Bot. Club 40:137-181. pls. 4-8. 1913.

⁴⁴ BOT. GAZ. 47:252. 1909.

⁴⁵ SZÜCS, JOSEPH, Über einige charakteristische Wirkung des Aluminiumions auf das Protoplasma. Jahrb. Wiss. Bot. 52:269-332. 1913.